Project Initialization and Planning Phase

Date	30 April 2024
Team ID	Team - 737850
Project Title	FetalAI: Using Machine Learning To Predict And Monitor Fetal Health
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) report

The proposal aims to revolutionize fetal monitoring by developing an AI-driven system that provides continuous, comprehensive analysis of fetal health and development throughout pregnancy. It tackles the limitations of current intermittent monitoring methods, enabling early detection of abnormalities, timely interventions, and improved maternal and fetal outcomes.

Project Overview	
Objective	The primary objective is to develop an advanced machine learning system that can analyze fetal ultrasound data to monitor fetal growth, development, and well-being throughout pregnancy.
Scope	The project comprehensively analyzes fetal ultrasound data using computer vision, image processing, and machine learning techniques to provide real-time, personalized fetal monitoring and risk assessment. .
Problem Statement	
Description	Current fetal monitoring methods lack continuous and comprehensive analysis, leading to missed opportunities for early intervention and sub optimal pregnancy outcomes.
Impact	Addressing these limitations will enable early detection of fetal abnormalities, proactive management of high-risk pregnancies, and improved maternal and fetal health outcomes.
Proposed Solution	
Approach	Leveraging AI and machine learning techniques to analyze fetal ultrasound data for real-time, personalized monitoring and risk assessment throughout pregnancy.
Key Features	- Detect and analyze fetal anatomical structures, track movements, estimate gestational age, monitor heart rate, and assess placental amniotic fluid.

	- Provide an integrated risk assessment and prediction model for potential complications. - Offer actionable insights and data-driven decision support for optimal prenatal care. - User-friendly, interpretative, and seamlessly integrated solution in healthcare settings.

Resource Requirements

Resource Type	**Description**	**Specification/Allocation**
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	2x NVIDIA A100 GPUs
Memory	RAM specifications	16 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask, TensorFlow
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDE	Jupyter Notebook, pycharm
Data		
Data	Source, size, format	Kaggle dataset, 614, csv UCI dataset, 690, csv